



# HiCap<sup>XS</sup> Graded-Index Multimode Optical Fibre.

## Type: 50 / 125 $\mu\text{m}$ or 62.5 / 125 $\mu\text{m}$

Draka Comteq  
Optical Fibre

Dual Layer Primary Coating (DLPC9)

Issue date: 11/04

Supersedes: 11/03

### Extended wavelength window Gigabit Ethernet quality performance.

The HiCap<sup>XS</sup> fibres of Draka Comteq are developed and characterised for enhanced link performance in laser-based Gigabit Ethernet applications. In particular the various access network architectures applying a single mode or multimode feeder, an active distribution point and a LAN-like first mile network can benefit from the low cost features offered by the HiCap<sup>XS</sup> graded-index multimode fibre. The fibres are produced by the proprietary Plasma-activated Chemical Vapour Deposition process (PCVD), acknowledged world-wide as offering the best core profile accuracy in multimode fibre. HiCap<sup>XS</sup> quality is available in 50  $\mu\text{m}$  and 62.5  $\mu\text{m}$  core diameter fibres.

### Features of HiCap<sup>XS</sup> multimode fibres.

- In Gigabit Ethernet (1000BASE-LX) systems, HiCap<sup>XS</sup> multimode fibres support the 550 m link length over an extended wavelength range from **1240 - 1550 nm**. This is considerably wider than the 1260 -1360 nm range as stated in the IEEE 802.3ah draft EFM (Ethernet in the First Mile) standard. The wider operational wavelength range offers relaxed requirements for the laser spectral characteristics, ample potential for opening additional OAM service channels and huge potential for future up-grade of the network.
- The overfilled launch bandwidth of 500 MHz.km as defined in the IEEE 802.3ah draft EFM in general does not describe the fibre modal dispersion behaviour sufficiently under laser launch conditions. The effective bandwidth under laser launch conditions has proved to be highly dependent on the profile accuracy in the centre of the core, whereas the overfilled launch bandwidth is determined by the averaged accuracy of the entire core profile. HiCap<sup>XS</sup> fibres are checked by dedicated DMD tests in order to guarantee the laser launch performance.
- HiCap<sup>XS</sup> multimode fibres can be operated at ALL wavelengths in the range 1240 - 1550 nm, i.e. also in the traditional 1385 nm water-peak region.
- HiCap<sup>XS</sup> multimode fibres eliminate the need to use expensive mode-conditioning patch cords, as prescribed in the Gigabit Ethernet standard.
- The HiCap<sup>XS</sup> multimode fibre is coated with a dual layer UV curable acrylate, type DLPC9. Designed for more stringent tight-buffer cable applications, the fibre also performs perfectly in loose tube constructions and demonstrates high resistance to micro-bending.

# Specifications

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Characteristics	Conditions	Specified Values			Units
		50 $\mu\text{m}$	62.5 $\mu\text{m}$	50 and 62.5 $\mu\text{m}$	
<b>Optical Characteristics</b>					
Attenuation Coefficient	1240-1550 nm			$\leq 0.7$	[dB/km]
Modal Bandwidth [1] Fibre Capacity	1240-1550 nm 1240-1550 nm			$\geq 500$ 1 Gb/s over 550 m	[MHz.km]
Numerical Aperture		$0.200 \pm 0.015$	$0.275 \pm 0.015$		
Chromatic Dispersion				FDDI Spec	
Backscatter Characteristics [2] Step [3]	1300 nm			$\leq 0.1$	[dB]
Irregularities over fibre length Reflections				$\leq 0.1$ Not allowed	[dB]
Group Index of Refraction (Typical)	1300 nm	1.477	1.491		
<b>Geometrical Characteristics</b>					
Core Diameter		$50 \pm 2.5$	$62.5 \pm 2.5$		[ $\mu\text{m}$ ]
Core Non-Circularity				$\leq 5$	[%]
Core / Cladding Concentricity Error				$\leq 1.5$	[ $\mu\text{m}$ ]
Cladding Diameter				$125.0 \pm 1.0$	[ $\mu\text{m}$ ]
Cladding Non-Circularity				$\leq 1.0$	[%]
Coating Diameter				$242 \pm 7$	[ $\mu\text{m}$ ]
Coating Non-Circularity				$\leq 5$	[%]
Coating Concentricity Error				$\leq 10$	[ $\mu\text{m}$ ]
Length		Standard lengths up to 17.6			[km]
<b>Environmental Characteristics</b>					
Temperature Dependence Induced Attenuation	1300 nm -60°C to +85°C			$\leq 0.1$	[dB/km]
Temperature and Humidity Cycling Induced Attenuation	1300 nm -10°C to +85°C, 90% R.H.			$\leq 0.2$	[dB/km]
Watersoak Dependence Induced Attenuation	1300 nm 20°C for 30 days			$\leq 0.2$	[dB/km]
Damp Heat Dependence Induced Attenuation	1300 nm 85°C, 85% R.H., 30 days			$\leq 0.2$	[dB/km]
<b>Mechanical Characteristics</b>					
Proof Test	off line			$\geq 8.8$ $\geq 1.0$ $\geq 100$ $\geq 0.7$	[N] [%] [KPSI] [GPa]
Bending Dependence Induced Attenuation	1300 nm 100 turns, 75 mm diameter			$\leq 0.5$	[dB]
Dynamic Stress Corrosion Susceptibility Parameter (Typical)				$\geq 27$	
Coating Strip Force	Typical average force Peak force			1.7 $1.3 \leq F \leq 8.9$	[N] [N]

1. The modal bandwidth is linearly normalized to 1 km, according to IEC 60793-2-10.  
 2. OTDR measurement with 0.5  $\mu\text{s}$  pulse width.  
 3. Mean of bi-directional measurement.